Claims

1. (previously presented) Process for the formation of a coating of metal oxides comprising at least one precious metal from Group VIII of the Periodic Table of the elements, on an electrically conductive substrate; the said process consisting in applying, to the said substrate, a solution comprising at least one organometallic compound and in then converting the said at least one organometallic compound to at least one metal oxide by means of a heat treatment; the said process being characterized in that the electrically conductive substrate is made of steel or of iron and in that the sole solution applied to the said substrate is a non-aqueous solution of one or more metal acetylacetonates dissolved in a one or more solvents which specifically dissolve said one or more metal acetylacetonates, the one or more solvents being chosen from alcohols, ketones, chloromethanes and mixtures of two or more thereof.

2. (previously presented) Process according to Claim 1, characterized in that the precious metal from Group VIII of the Periodic Table of the elements is selected from ruthenium, rhodium, palladium, osmium, iridium and platinum.

3. (previously presented) Process according to Claim 2, characterized in that the precious metal is selected from ruthenium and iridium.

4. (previously presented) Process according to Claim 3, characterized in that the precious metal is ruthenium.

5. (previously presented) Process according to Claim 1, characterized in that the alcohol is selected from ethanol and isopropanol.

6. (previously presented) Process according to Claim 1, characterized in that the ketone is acetone.

7. (previously presented) Process according to Claim 1, characterized in that the chloromethane is chloroform.

8. (previously presented) Process according to Claim 1, characterized in that the metal acetylacetonate solution is obtained by dissolution of the said metal acetylacetonate in one or more specific solvents or in a mixture of solvents.

9. (previously presented) Process according to Claim 1, characterized in that said solution of one or more metal acetylacetonates is obtained by dissolution of the said one or more metal acetylacetonates in a mixture of said one or more solvents.

10. (previously presented) Process according to Claim 1, characterized in that, said electrically conductive substrate made of steel or of iron is pretreated, in a first stage, and then, in a second stage, the solution comprising the one or more metal acetylacetonates is deposited on the said pretreated substrate and the substrate thus coated is dried and then calcined.

11. (previously presented) Process according to Claim 10, characterized in that the drying is carried out at a temperature of up to 150°C.

12. (previously presented) Process according to Claim 10, characterized in that the substrate coated by the one or more metal acetylacetonates is calcined under air or an inert gas enriched with oxygen, at a temperature at least equal to 300°C, for a period of time ranging from 10 minutes to 2 hours.

13. (previously presented) Process according to Claim 10, characterized in that the second stage is repeated at least once.

14. (canceled) Electrically conductive substrate made of steel or of iron carrying a coating of metal oxides which is formed by means of a process according to Claim 1.

15. (canceled) Use of the electrically conductive substrate according to Claim 14 in the production of an activated cathode.

16. (canceled) Use of an activated cathode according to Claim 15, in the electrolysis of aqueous solutions of alkali metal chlorides.

17. (canceled) Use according to Claim 16, characterized in that the aqueous solutions of alkali metal chlorides are aqueous sodium chloride solutions.

18. (canceled) Process for the manufacture of chlorine and alkali metal hydroxide by electrolysis of the corresponding chloride by means of a cathode according to Claim 15.

19. (canceled) Process for the manufacture of alkali metal chlorates by electrolysis of the corresponding chloride by means of a cathode according to Claim 15.

20. (previously presented) Process according to Claim 1, characterized in that said at least one precious metal form Group VIII of the periodic Table of the elements is combined with titanium, zirconium or mixtures thereof.

21. (previously presented) Process according to Claim 1 characterized in that said said solution comprising several metal acetylacetonates is obtained by mixing solutions comprising a single metal acetylacetonate which is obtained by dissolution of the said metal acetylacetonate in a specific solvent or in a mixture thereof.

22. (previously presented) Process according to Claim 10, characterized in that the substrate coated by the one or more metal acetylacetonates is calcined under air or an inert gas enriched with oxygen, at a temperature of between 400°C and 600°C, for a period of time ranging from 10 minutes to 2 hours.

23. (previously presented) Process according to Claim 10, characterized in that the second stage is repeated between 2 and 6 times.